

# STATUS OF O&M SITE INSPECTIONS IN DELAWARE



IC Roundtable  
Tucson, Arizona  
April 2006

**Wilmer Reyes**  
**Environmental Engineer**

# HSCA CLEANUP PROCESS



# DNREC O&M Program

---

- To establish an effective mechanism to monitor the progress of the O&M activities and outcomes at the sites where a remedy has been performed, ensuring long-term integrity of the remedy and verifying that remedial action objectives are being met
- Components of the Program:
  - O&M Guidance
  - Sites inventory and status
  - O&M inspections
  - Record keeping
  - Program Evaluation

# O&M Program Background

---

- Started in 2002 as the Superfund Branch initiative.
- First efforts focused in developing a site inventory and a O&M Guidance.
- Guidance completed in 2002.
- First inventory completed in 2003.
- Inspections started in November 2003.
- Started with approx. 70 sites... currently close to 100 sites.

# O&M Guidance

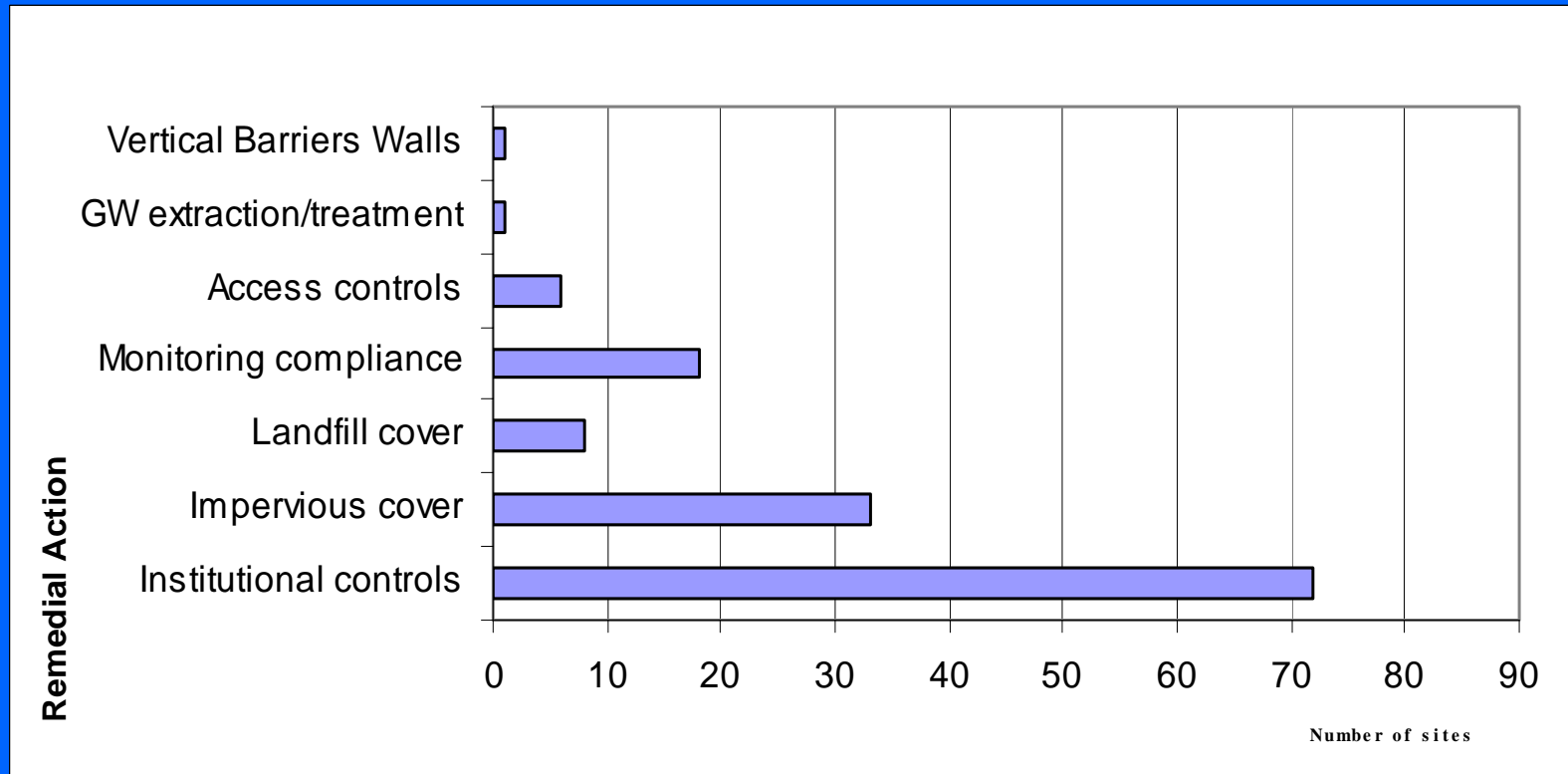
---

- Establishes the policy for facilities regulated under 7 Del. C, Chapter 91, the Delaware HSCA and VCP Program.
- Applies to facilities where a remedial action has been completed and have engineering and institutional control requirements.
- Establishes procedures for preparing O&M Plans and 5-year remedy evaluations.
- 2003 Amended to include groundwater remediation.
- Presented in several Workshops with responsible parties, site owners and consultants.

- [illegible]

# Inventory - Type of remedial action

---



# Inventory – O&M Plans and Deed Restrictions

---

|                                    | Landfill covers | B/A/C covers | MC | GW<br>extraction | IC only | Total     |
|------------------------------------|-----------------|--------------|----|------------------|---------|-----------|
| O&M Plan required                  | 6               | 23           | 1  | 1                | 0       | 32        |
| O&M Plan to be done                | 0               | 8            | 1  | 1                | 0       | <b>10</b> |
| O&M Plan required after inspection | 2               | 3            | 1  | 1                | 0       | 7         |
| O&M Plan updated                   | 1               | 4            | 0  | 0                | 0       | 5         |
| O&M to be executed                 | 0               | 3            | 0  | 0                | 0       | 3         |
| Deeds required                     | 8               | 32           | 3  | 1                | 12      | 56        |
| Deeds to be done                   | 1               | 15           | 0  | 1                | 1       | <b>18</b> |
| Deeds required after inspection    | 0               | 0            | 1  | 0                | 1       | 2         |
| Deeds to be modified               | 4               | 14           | 2  | 1                | 3       | 24        |
| GMZ required                       | 6               | 24           | 3  | 2                | 10      | 45        |
| GMZ to be done                     | 1               | 1            | 1  | 0                | 0       | <b>3</b>  |
| GMZ required after inspection      | 0               | 0            | 1  | 0                | 0       | 1         |

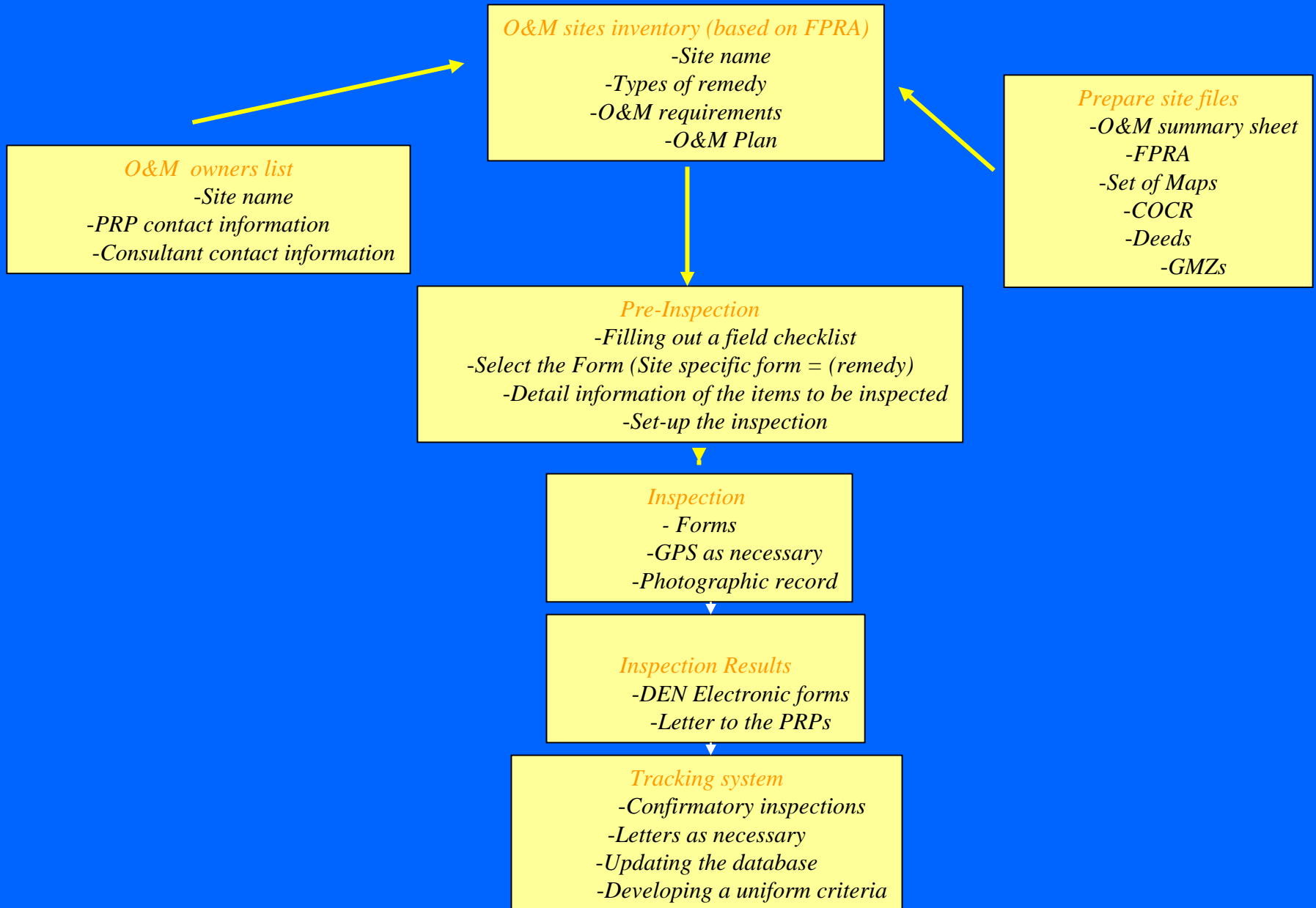


# O&M Inspection Program

---


- Implemented by DNREC or private parties at HSCA and VCP sites where O&M activities are required
- DNREC inspects each site annually, started in November 2003
- DNREC inspections are performed in addition to or combined with private party inspections
- All inspections use either a site specific form or the DNREC inspection form

# O&M Inspection Process



# O&M Inspection General Form

---

|   |   |   |
|---|---|---|
|  |   |   |
| O&M Inspections:  |   |   |
|   |   | <input type="radio"/> Consultant<br><input type="radio"/> DNREC |
| Date  | <input type="text"/>  |   |
| Inspector(s)<br>name(s)   | <input type="text"/>  |   |
| Company name  | <input type="text"/>  | (select)  |
| Overall conclusions   | <input type="radio"/> O&M activities in accordance to the Plan<br><input type="radio"/> O&M Plan needs to be developed<br><input type="radio"/> ICs are in place<br><input type="radio"/> ICs to be implemented/recorded<br><input type="radio"/> Data suggests GW plume is contained<br><input type="radio"/> Contaminant concentrations are declining                                       |   |
| Overall<br>recommendations  | <input type="text"/>  |   |
| Inspections forms   | <input type="radio"/> IF01 Landfill capping<br><input type="radio"/> IF02 Building/Asphalt/Concrete cover<br><input type="radio"/> IF03 Groundwater extraction/treatment<br><input type="radio"/> IF04 Monitoring natural attenuation<br><input type="radio"/> IF05 Vertical barrier walls<br><input type="radio"/> IF06 Access controls<br><input type="radio"/> IF07 Institutional controls |   |
| Select  | <input type="text" value="Inspections within last 1 year"/><br><input type="text" value="Inspections by consultant"/>   |   |

# O&M Inspection Detailed form

---

| IF01. LANDFILL CAPPING                                     |                       |                       |                       |
|--|-----------------------|-----------------------|-----------------------|
| Landfill features<br>(area extent, location, layers, etc): |                       |                       |                       |
|  |                       |                       |                       |
| <b>ITEMS INSPECTED</b>                                     | <b>Yes</b>            | <b>No</b>             | <b>N/A</b>            |
| Settlement   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Erosion  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Holes  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Exposure/deterioration of geotextile fabric                | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Vegetative cover stress/overgrown                          | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Vegetative cover without maintenance                       | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Alternative cover (crush stone, concrete) deteriorated     | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Wet areas, water damage                                    | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Slope instability  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Benches damage   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Letdown Channels deteriorated                              | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Gas vents functioning                                      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Gas monitoring probes functioning                          | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Monitoring wells functioning                               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Outlet pipes functioning                                   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Outlet rock functioning                                    | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Sedimentation ponds functioning                            | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Comments   |                       |                       |                       |
|  |                       |                       |                       |
| Maintenance recommended                                    |                       |                       |                       |
| <input type="radio"/> Yes<br><input type="radio"/> No      |                       |                       |                       |
| Comments   |                       |                       |                       |
|  |                       |                       |                       |

# O&M Inspection Detailed Form

---

## IF04. MONITORED NATURAL ATTENUATION

Remedy features (contaminant(s), analysis, number of MWs, etc)

| ITEMS INSPECTED                            | Yes                   | No                    | N/A                   |
|--|-----------------------|-----------------------|-----------------------|
| Monitoring wells damaged                   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Monitoring wells locked/identified         | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Monitoring well location recorded with GPS | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Well developed prior sampling              | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Purged before sampling                     | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Water levels measured                      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (Other)                                    | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Monitoring data suggest

Comments

Maintenance recommended

- ☐ Yes
- ☐ No

Comments

# O&M Record keeping

---

- Records from the O&M inspections are maintained in DNREC-SIRB files both in hard copy and electronic form
- Electronic files are available to the public through the DNREC online navigator system

# Compliance Status

**Site Name:** *Movable Feast*  
**PRP Info:** *Stephan Horgan*  
*Movable Feast*  
*2510 W. 5<sup>th</sup> Street*

*Wilmington, DE 19805*  
*(302)656-8892*

Remedies:

Landfill Capping  
**Building/Concrete/Vegetative Cover**  
Groundwater Extraction/Treatment  
Monitoring Compliance

**Site ID #:** *DE-1063*  
**Tax Parcel #:** *2601930160*  
**Inspection Date:** *01/04/06*  
**PO:** *N/A*

Vertical Barrier Walls  
**Access Controls**  
**Institutional Controls**  
Reporting\*\*

| Document            | Date     | Comments  |
|---------------------|----------|---|
| FP of RA            | 1/1/97   | Deed restriction; installation of a maintained asphalt cap on all areas of the property not covered by the building footprint |
| Deed Restriction*** | 8/29/96* | Use restriction (non-residential)   |
| GMZ                 | n/a      | -   |
| COCR                | -        | Issued 2/14/97 but not returned recorded  |
| O&M Plan            | -        | Maintenance of the asphalt cap  |

\*start of O&M activities

Status: **NOT Compliant**

Remaining Activities:

•O&M Plan needs to be developed and implemented. Asphalt repair. Return recorded COCR

Next O&M inspection: 7/7/06

Comments/Notes: 1) FPRA does not require an O&M Plan but because the remedy calls for a cover system, and O&M Plan is required. This information was relayed to PRP through O&M inspection. 2) Reporting frequency to be determined in the O&M Plan 3) The restrictions are contained in the last paragraph of the deed, rather than a separate deed restriction document 4) Permanent Monitoring wells: no mention of groundwater sampling in FPRA



Movable Feast (Wilmington)  
Total Size: 0.5± acres

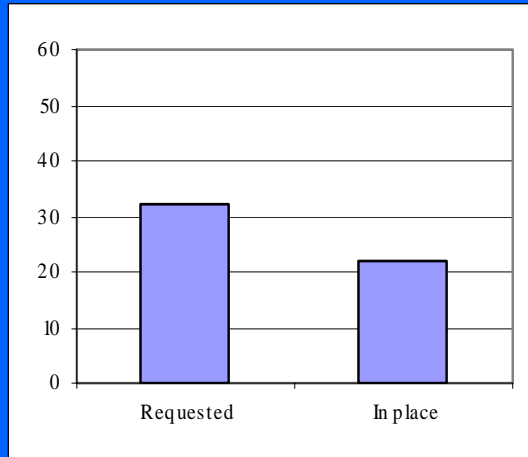
Directions to Site (from 391 Lukens Drive): Left on Cherry Lane; Right on Rt.9S; Continue on 4<sup>th</sup> Street; Right on Hawley Street; Left on W. 5<sup>th</sup> Street; Arrive at 2510 W. 5<sup>th</sup> Street

# Areas of Compliance

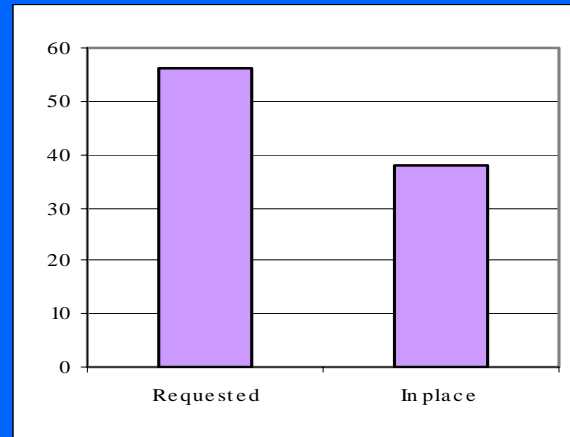
---

Deed  
restrictions

O&M Plans

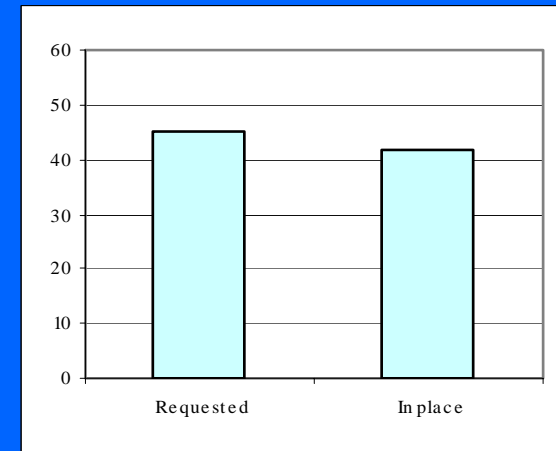


+ - 30 %



+ - 32 %

Groundwater  
Management  
Zones



+ - 7 %



# Reasons for non-compliance

- Remediation is considered completed after remedial action is implemented
- Lack of consistency of IC requirements for type of remedial action (i.e. 9 different deed restrictions)
- Transfer of properties occurred with proper notification
- Certificate of Completion of Remedies issued before O&M is completed
- O&M cost assumed by the HSCA fund.

# Actions being developed

---

- Standard Criteria
- Enforcement mechanisms
  - Enforcement Memo
  - Annual Enforcement Reports
- New Covenant Act
  - Language being finalized
  - 3 formats to accommodate Branches need
  - Enforcement language
  - Monitoring compliance
- Reassessing cost
- Incorporate the O&M Program into a Division Program
  - Monthly meetings started in Feb 2006
  - Sharing same database for relevant documents
  - Develop common letters and tracking forms for each Branch

# New Challenges

---

- How to manage engineering and institutional controls on redevelopment projects that involve several sites and responsible parties?
- How to integrate project-wide groundwater monitoring programs?
- How to evaluate O&M cost for redevelopment projects? Assign O&M requirements under the overall construction maintenance guidance.

# O&M Program Evaluation

---

- Every year, an O&M status report will be issued by DNREC to evaluate the progress of the program. This evaluation will also be used to plan the activities of the following year
- The report will be available online

# Keep in mind...

---

*O&M activities are required for all sites until such time that contaminants of concern at a site are at levels that ensure restrictions on the land use of the facility are not needed*